



05052008-0081
Invoice No.: INV/PT-LB/ 18

Date: 1 May 2008

Participant Name:

Fax No. :

Attention: Laboratory Manager

Subject: **Invoice For Participation in Inter-Laboratory Proficiency Testing Program (PTP)**

You are hereby requested to pay to Dubai Accreditation Department, Dubai Municipality the participation fee for the Inter-laboratory Proficiency Testing Program having the following details:

PTP No.	160
Details	Determination of In-Situe Density by Sand Replacement Method
Amount	Dhs 850

How to Pay:

EFT

Electronic Funds Transfer

Bank Name: Emirates Bank International PJSC
Branch: Dubai Main Branch, P.O. Box 2923 UAE
Account Name: Dubai Municipality – Revenue A/C
Account Number: 0022 – 107445 – 001
SWIFT Code: EBILAEAD

Credit Card

By visiting Dubai Central Laboratory
Department
Administration Building- DCLD counter –
ground floor

Cheque

Please address the cheque to Dubai Municipality
and submit it by hand to DCLD counter.

Note:

- You are kindly requested to pay the amount within one month from the date in which the result is posted on our website.
- All sending and receiving bank charges must be included in the payment to ensure the full invoice amount is received.
- Please make sure that the payment is referring to DAC Accreditation Fees Alies No. 631 regardless of the payment method used.
- After payment please submit a copy of the receipt to Dubai Accreditation Department (Aisha Al Ali in DCLD administration building- 2nd floor- DAC Director Secretary and Technical Support Office.

Best Regard.

AMINA A. MOHAMMED
DIRECTOR OF DUBAI ACCREDITATION DEPARTMENT

Please fill the required information requested in this invoice form before paying the required amount to DCL Counter.

Cc:

- Quality and Support Unit- DAC

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DUBAI ACCREDITATION DEPARTMENT

REPORT ON 160TH LABORATORY PROFICIENCY TESTING DETERMINATION OF IN-SITUE DENSITY BY SAND REPLACEMENT METHOD

30 April 2008

1. INTRODUCTION

This document presents the results of the 160th inter-laboratory proficiency-testing program conducted during the month of April involving the **Determination of In –Situ Density by Sand Replacement Method** with twenty five laboratories participating.

This program is part of the Inter-laboratory Comparison Programs organized by the Dubai Accreditation Department (DAC) of Dubai Municipality (DM) for monitoring the validity of test results of laboratories operating in Dubai as a requirement of the Local Order 52/1990 and ISO/IEC 17011: 2004.

2. EXPERIMENTAL DESIGN

2.1 Homogeneity:

DAC ensure the homogeneity of the samples prior to their distribution to the participating laboratories by conducting homogeneity test on six samples (randomly selected). Based on the test results the homogeneity is statistically evaluated as per *ISO 13528:2005 as explained in DAC-G3-03*.

2.2 Participants:

Twenty three private laboratories and two governmental laboratories (twelve of them are accredited by DAC for construction materials testing) participated in this program.

2.3 Samples Tested:

One sand sample (wet mix) shall be taken from the location by all participating laboratories.

3. CONFIDENTIALITY

Each laboratory is given a code number to maintain confidentiality of results and to protect their identities. Only the concerned laboratory knows its code number. For this particular program participating Laboratories are requested to contact Dr. Yaser Rahaq (Tel No.: 302 7074) to know their code number.

DUBAI ACCREDITATION DEPARTMENT

4. TEST METHOD

Instructions were given to the participants to test the samples for BS 1377: Part 9: 1990: Cl. 2.2 AMD 8264: 1995.

5. TEST RESULTS

The test results submitted by the participating laboratories are presented in Appendix A. In order to protect the identity of the participating laboratories, each one was assigned a code number. The numbers in the column headings, Lab #, of the tables represents the code numbers for the participating laboratories.

6. EVALUATION OF RESULTS

6.1 Method of Analysis

The analysis of the participant's results is based on *ISO 13528:2005 (Statistical Methods for the Use in Proficiency Testing by Inter-laboratory Comparisons)*

6.2 Calculations of Z- scores

Appendix B gives the details of the calculation of the laboratories results and their Z-Scores which are obtained from the raw data. Also Z- Score and participant's results are represented in a bar chart and X-Y scattered plots C. The Z-Score analysis is based on an international Standard (*ISO 13528:2005*).

6.3 Outlier Results

Test	Labs outside the z-scores ± 3
In -Situ Density by Sand Replacement Method	Lab No. 24

7. CONCLUSION AND RECOMMENDATIONS

The test results provided by the above mentioned laboratories are outside the Z - score limits of ± 3 , the abovementioned laboratories are requested to investigate the root cause of the outlier results, implement corrective action and email a report within 2 weeks to Accreditation Decisions Section of the Dubai Accreditation Department to the following address msrassol@dm.gov.ae

8. APPENDICES

8.1 Appendix A: Raw Data

8.2 Appendix B: Calculation of z-scores and other statistics

8.3 Appendix C: Charts

رؤيتنا: بناء مدينة متميزة تتوفر فيها رفاهية العيش ومقومات النجاح.
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Appendix A: Raw Data

Degree of Compaction %

Lab #	Results
Lab 1	97
Lab 2	97
Lab 3	98
Lab 4	100
Lab 5	97
Lab 6	97
Lab 7	96
Lab 8	99
Lab 9	99.6
Lab 10	97
Lab 11	97
Lab 12	97
Lab 13	98.38
Lab 14	98
Lab 15	100
Lab 16	98
Lab 17	97
Lab 18	95
Lab 19	97
Lab 20	98
Lab 21	97
Lab 22	99
Lab 23	97
Lab 24	91
Lab 25	98

Appendix B: Calculation of z-scores and other statistics

Iteration	0		1		2		3		4		5		6		Z Score
$\delta = 1.5 s$	---	xi-x*	2.22	(xi-x*) ²	2.03	(xi-x*) ²	1.87	(xi-x*) ²	1.81	(xi-x*) ²	1.80	(xi-x*) ²	1.79	(xi-x*) ²	Z Score
$x^* - \delta$	---		94.78		95.45		95.65		95.72		95.74		95.75		
$x^* + \delta$	---		99.22		99.50		99.38		99.35		99.34		99.33		
LAB 1	97	0.00	97.00	0.22	97.00	0.27	97.00	0.29	97.00	0.29	97.00	0.29	97.00	0.29	-0.46
LAB 2	97	0.00	97.00	0.22	97.00	0.27	97.00	0.29	97.00	0.29	97.00	0.29	97.00	0.29	-0.46
LAB 3	98	1.00	98.00	0.28	98.00	0.23	98.00	0.22	98.00	0.21	98.00	0.21	98.00	0.21	0.38
LAB 4	100	3.00	99.22	3.07	99.22	2.91	99.22	2.86	99.22	2.84	99.22	2.83	99.22	2.83	2.06
LAB 5	97	0.00	97.00	0.22	97.00	0.27	97.00	0.29	97.00	0.29	97.00	0.29	97.00	0.29	-0.46
LAB 6	97	0.00	97.00	0.22	97.00	0.27	97.00	0.29	97.00	0.29	97.00	0.29	97.00	0.29	-0.46
LAB 7	96	1.00	96.00	2.17	96.00	2.30	96.00	2.35	96.00	2.37	96.00	2.38	96.00	2.38	-1.29
LAB 8	99	2.00	99.00	2.33	99.00	2.20	99.00	2.15	99.00	2.13	99.00	2.13	99.00	2.12	1.22
LAB 9	99.6	2.60	99.22	3.07	99.22	2.91	99.22	2.86	99.22	2.84	99.22	2.83	99.22	2.83	1.73
LAB 10	97	0.00	97.00	0.22	97.00	0.27	97.00	0.29	97.00	0.29	97.00	0.29	97.00	0.29	-0.46
LAB 11	97	0.00	97.00	0.22	97.00	0.27	97.00	0.29	97.00	0.29	97.00	0.29	97.00	0.29	-0.46
LAB 12	97	0.00	97.00	0.22	97.00	0.27	97.00	0.29	97.00	0.29	97.00	0.29	97.00	0.29	-0.46
LAB 13	98.38	1.38	98.38	0.82	98.38	0.74	98.38	0.72	98.38	0.71	98.38	0.70	98.38	0.70	0.70
LAB 14	98	1.00	98.00	0.28	98.00	0.23	98.00	0.22	98.00	0.21	98.00	0.21	98.00	0.21	0.38
LAB 15	100	3.00	99.22	3.07	99.22	2.91	99.22	2.86	99.22	2.84	99.22	2.83	99.22	2.83	2.06
LAB 16	98	1.00	98.00	0.28	98.00	0.23	98.00	0.22	98.00	0.21	98.00	0.21	98.00	0.21	0.38
LAB 17	97	0.00	97.00	0.22	97.00	0.27	97.00	0.29	97.00	0.29	97.00	0.29	97.00	0.29	-0.46
LAB 18	95	2.00	95.00	6.12	95.45	4.29	95.65	3.54	95.72	3.31	95.74	3.23	95.75	3.20	-2.13
LAB 19	97	0.00	97.00	0.22	97.00	0.27	97.00	0.29	97.00	0.29	97.00	0.29	97.00	0.29	-0.46
LAB 20	98	1.00	98.00	0.28	98.00	0.23	98.00	0.22	98.00	0.21	98.00	0.21	98.00	0.21	0.38
LAB 21	97	0.00	97.00	0.22	97.00	0.27	97.00	0.29	97.00	0.29	97.00	0.29	97.00	0.29	-0.46
LAB 22	99	2.00	99.00	2.33	99.00	2.20	99.00	2.15	99.00	2.13	99.00	2.13	99.00	2.12	1.22
LAB 23	97	0.00	97.00	0.22	97.00	0.27	97.00	0.29	97.00	0.29	97.00	0.29	97.00	0.29	-0.46
LAB 24	91	6.00	94.78	7.28	95.45	4.29	95.65	3.54	95.72	3.31	95.74	3.23	95.75	3.20	-5.49
LAB 25	98	1.00	98.00	0.28	98.00	0.23	98.00	0.22	98.00	0.21	98.00	0.21	98.00	0.21	0.38
Average	97.40		97.47	34.10	97.52	28.88	97.53	27.25	97.54	26.73	97.54	26.56	97.54	26.51	
SD	1.79		1.19	1.42	1.10	1.20	1.07	1.14	1.06	1.11	1.05	1.11	1.05	1.10	
New x*	97	1.00	97.473	1.19	97.518	1.10	97.534	1.07	97.540	1.06	97.54	1.05	97.54	1.05	
New s*	1.48		1.352		1.244		1.208		1.197		1.19		1.19		

N 25

Target value	98
Low Acceptable	94
High Acceptable	101
Acceptable Range	94 - 101

Appendix C:Charts

